UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,543	09/05/2000	Dominique P. Bridon	REDC-2200 US	5070

20583 7590 10/18/2007

JONES DAY
222 EAST 41ST ST
NEW YORK, NY 10017

EXAMINER	
FETTEROLF, BRANDON J	
ART UNIT	PAPER NUMBER
1642	

MAIL DATE	DELIVERY MODE
10/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/623,543	BRIDON ET AL.	
	Examiner	Art Unit	
	Brandon J. Fetterolf, PhD	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22,24,25,28,33-36,38,42,43,45,49-53 and 56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *22,24,25,28 and 33* is/are allowed.

6)☒ Claim(s) *35,36,38,42,43,45,49-53 and 56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to the Amendment

The Amendment filed on 10/10/2006 in response to the previous Non-Final Office Action (5/24/2006) is acknowledged and has been entered.

Claims 22, 24-25, 28, 33-36, 38, 42-43, 45, 49-53 and 56 are currently pending and under consideration.

New Rejections upon Reconsideration:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 35-36, 38, 42-43, 45, 49-53 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidson et al. (WO 97/41824, 13 November 1997/ IDS reference AM on sheet 1 of 3, February 2001) in view of Peeters et al. (J. Immunol Methods 1989; 120: 133-143, *of record*)

(Note: Claims 35 and 49 have been examined as product by process claims. As such, the product by process claims are not limited to the manipulations of the recited steps, only the structure applied by the steps, *see* MPEP 2113 [R-1].)

Davidson et al. disclose (see page 43, Example 5, line 12) a kringle 5 peptide or ester thereof having an amino aid sequence which appears to be 100% identical to the currently claimed modified peptide comprising SEQ ID NO: 8. Davidson et al. further teach a method of producing polyclonal antisera, wherein the kingle 5 peptide is linked to purified bovine serum albumin using glutaraldehyde (page 36, lines 5-9). Moreover, Davidson et al. teach (page 36, lines 12-15) that the kingle 5 peptide conjugated to a carrier protein such as BSA is than combined with an adjuvant mixture and injected subcutaneously into a suitable host such as a rabbit, sheep, or goat.

Davidson et al. does not explicitly teach that the reactive group is a maleimido-containing or succinimidyl-containing group.

Peeters et al. disclose a comparison of four bifunctional reagents for coupling peptides to proteins and the effect of the three moieties on the immunogenicity of the conjugates. The reference further teaches that cross linkers such as glutaraldehyde have been shown to elicit antibodies directed against the spacer (page 142, 2nd column, 1st paragraph). In contrast, Peeters et al. teach that the more flexible non-aromatic linker originating from MHS (succinimidyl 6-(N-maleimido)-n-hexanoate) is the bifunctional reagent of choice for coupling peptides to carrier proteins because is showed almost no linker specific antibody reactivity (Abstract). Peeters et al. further teach the synthesis (page 134, Figure 1) of protein-peptide conjugates, wherein an amino group on the carrier protein is linked to the bifunctional reagent which is further linked to the peptide via a thiol group.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use MHS instead of glutaraldehyde to link a carrier protein, such as bovine serum albumin, with a kringle 5 peptide in view of the teachings of Peeters et al.. One would have been motivated to do so because Peeters et al. teach that unlike glutaraldehyde, MHS has a low potential for immunogenicity directed against the linker. Thus, one of ordinary skill in the art would have a reasonable expectation of success that by using MHS instead of glutaraldehyde as taught by Peeters et al. to link a carrier protein, such as bovine serum albumin, with a kringle 5 peptide, one would achieve a peptide-linked to a carrier protein which generates antibodies which are not directed against the linker.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not

depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

(Note: In order to expedite prosecution, the Examiner would like to address Applicants arguments pertaining to the previous rejection as they relate to the instant rejection. In response to the previous rejection, Applicants assert that the claims have been amended to recite that the reactive group is covalently bonded to a thiol group on the blood component or albumin. As such, Applicants assert that the amendment should place the claims in condition for allowance since the Examiner indicated on page 4 of the Office Action that the references do not teach or suggest that the reactive group is bonded to a thiol group of serum albumin and, thus, claims 38 and 45 are objected to as being dependent from a rejected independent base claim.

These arguments have been carefully considered, but are not found persuasive.

In the instant case, the Examiner has carefully reviewed and reconsidered the teachings of the prior art and has found that Peeters et al. teaches the synthesis (page 134, Figure 1) of protein-peptide conjugates, wherein an amino group on the carrier protein is linked to the bifunctional reagent which is further linked to the peptide via a thiol group. As such, Peeters et al. clearly teaches that MHS groups are reactive with thiol groups.

Conclusion

While Davidson et al. teaches a peptide and a method of using the patentably disclosed amino acid sequence represented by SEQ ID NO: 8 and 39, the reference does not teach or suggest administering the amino acid sequence with the addition of a succinimidyl-containing group or maleimido-containing groups. As such, claim 22, 24-25, 28 and 33 appears to be free of the prior art and allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon J. Fetterolf, PhD whose telephone number is (571)-272-2919. The examiner can normally be reached on Monday through Friday from 7:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brandon J Fetterolf, PhD
Patent Examiner
Art Unit 1642

BF